

# Process Data Correlation – The Secret Weapon for More Effective Machinery Management



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I can't tell you how many times I've seen the same scenario: Data Manager® 2000 has caught a machinery "bump in the night." Operations and Reliability personnel need to determine if it was process-related. To do this, they gather paper trend charts from their process control system and attempt to correlate them with our system. Often, this takes the form of mounting printouts side-by-side on a wall or spread out on a conference table, or by stacking printouts on top of one another and holding them up to a light to see both trends overlaid. Did something in the process change causing the compressor to surge? Did the machine experience a failure that changed the process? Cause and effect – process or machine – are part of the same questions no matter where I travel in the world, as customers seek to find root cause when there is a machinery problem. The old method of trying to line up trend charts created by different systems with different scales, sizes, and resolutions is a very cumbersome and time-consuming way to investigate cause and effect relationships.

## Can the Process Control System Do It All?

When it comes to static data, process control systems and data historians do a great job of trending and displaying this. Many of our customers have already discovered how simple it is to put machinery data in front of their Operations personnel by integrating Bently Nevada's data into their process control system. While important, this capability is already well established and is being done by many of our customers.

What is less well established is the integration of process data *into* the machinery management system. While the interfaces to import this data have been available in our systems for quite some time, and are very straightforward to implement, I would estimate that fewer than 20% of the approximately 1800 Data Manager® 2000 users worldwide have done this.

There are several reasons to make certain your Bently Nevada software is importing and trending process data.

1. *The process control system is not designed to handle dynamic data*  
As machinery engineers can attest, the ability to view *dynamic* data during a machinery event is invaluable – orbit plots, full spectrum, and other data presentations convey information about the machine that is simply not present in static data presentation

formats such as trend charts or overall vibration bargraphs. The ability to correlate what is happening in the process at the same time as a specific feature in the dynamic data is present is often the key to unlocking a machinery puzzle. The process control system simply cannot do this, because it cannot capture or archive dynamic data. Bently Nevada's systems, however, do this easily.

2. *During a process upset, it may be difficult to access the process control system*

When a machinery or process "upset" occurs, Operations personnel will typically be using every available DCS console or process control interface, leaving the machinery specialist to observe from a distance. By integrating process data into the Bently Nevada machinery management system, the machinery specialists do not have to compete for "screen time" with operators and other process control system users. They can go about their business investigating and controlling the process while machinery specialists investigate the machinery details, armed with all the information needed to make informed decisions.

### 3. *Practice makes perfect*

We are all most proficient with the tools we use most frequently. Most machinery engineers use the machinery management system to diagnose machinery problems. Time is often of the essence. Each minute of lost or reduced production can be thousands of dollars. By integrating all the data necessary to properly diagnose your machinery into a single tool that machinery specialists are already familiar with, they can get to fundamental cause faster.

### 4. *Remote access*

When remotely accessing machinery and plant data, the challenges of collecting data from numerous systems is compounded. You can't just walk across the plant and get a printout from the DCS to compare with your machinery data. When the necessary process information is integrated into your Bently Nevada machinery management system, everything needed is available simultaneously and online. Whether accessing your plant via modem or a Wide Area Network link, only a single connection is required and there is no need to switch back and forth between systems. The machinery management system becomes an integrated repository for "one stop" diagnostic information.

### 5. *Integration into Machine Condition Manager™ 2000*

It is difficult if not impossible to review all the data our online systems can generate. A knowledge-based system such as MCM 2000 can be a key tool in finding the critical data in a large database to allow exception management. Process data is critical to the proper operation of knowledge-based systems such as MCM 2000. Process data integration facilitates this important next step.


Those customers who have integrated process data into their Bently Nevada machinery management system have doubled or even tripled its usefulness. The cost is very small compared to the tremendous value provided. If you are using a Bently Nevada machinery management system and are not taking advantage of this capability, I hope my words here will encourage you to take the next step and get so much more from your system. The capability is available in all our current software, and our System Integration Engineering group is both capable and experienced in implementation. The integration is usually very straightforward.

### **We're helping ...**

As I noted above, importing and exporting data is absolutely fundamental to getting the most from your machinery management system. That's why,

beginning with our Data Manager® 2000 software, and later our Trendmaster® 2000 software, and now our System 1™ software, Bently Nevada has made every effort to make your job easier when it comes to correlating process information and machinery information. Standard interfaces to most DCS, PLC, and unit control systems have been engineered and field proven.

Through these standard interfaces such as OPC, DDE, Modbus, and others, we allow the process data collected and archived in your process control systems or data historians to be easily shared with our software. Through advanced display plot types such as multivariable trends, you can easily view both process and machine condition data, regardless of whether that data is acquired through Bently Nevada hardware and field devices or not.

I fully expect our capabilities in this area to grow, particularly with System 1 and its ability to integrate with other applications and databases you may be using in your plant. If you haven't already integrated your Bently Nevada machinery management system, both to provide data to your process control system, and to import data from your process control system, I encourage you to contact us today to learn more. It can take your machinery asset management program to a whole new level of effectiveness. 

#### **Table of Acronyms**

DCS	Distributed Control System
DDE	Dynamic Data Exchange
OPC	OLE for Process Control
PLC®	Programmable Logic Controller